

### ABSTRACT

Composite media, systems, and devices for substantially removing, or otherwise processing, one or more constituents of a fluid stream. The composite media comprise a plurality of beads, each having a matrix substantially comprising polyacrylonitrile (PAN) and supporting one or more active components which are effective in removing, by various mechanisms, one or more constituents from a fluid stream. Due to the porosity and large surface area of the beads, a high level of contact is achieved between composite media of the present invention and the fluid stream being processed. Further, the homogeneity of the beads facilitates use of the beads in high volume applications where it is desired to effectively process a large volume of flow per unit of time.

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